

Texas Municipal and Industrial Water Use Survey

USGS Water Use Open-Forum

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April 27, 2016

The following presentation is based upon professional research and analysis within the scope of the Texas Water Development Board's statutory responsibilities and priorities but, unless specifically noted, does not necessarily reflect official Board positions or decisions.



Outline

- Background of Water In Texas
- History of Surveying For Water Use
- The Survey
- Usage & Reports
- New Opportunities
- Challenges



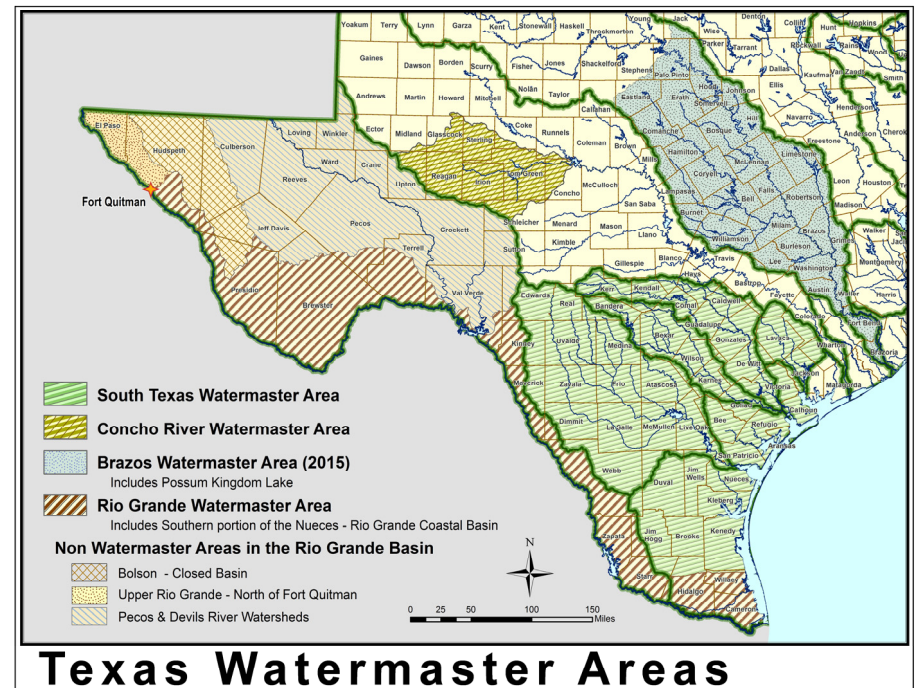
Background of Water In Texas

- 2 Agencies
 - TWDB
 - Texas Commission on Environmental Quality (TCEQ)
- Surface Water
- Groundwater
- Water Supply Planning



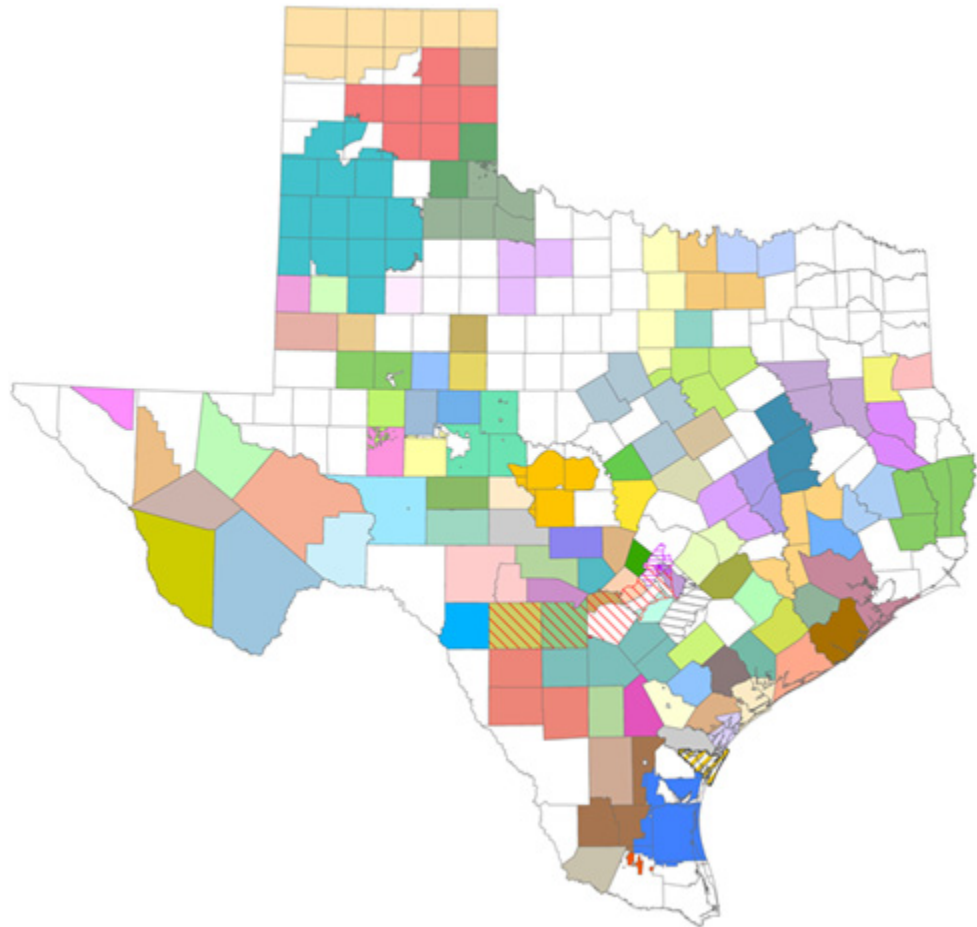
Surface Water

- Belongs to the state
- Riparian rights
- Prior appropriation rights
- Administered by TCEQ
- Watermaster areas



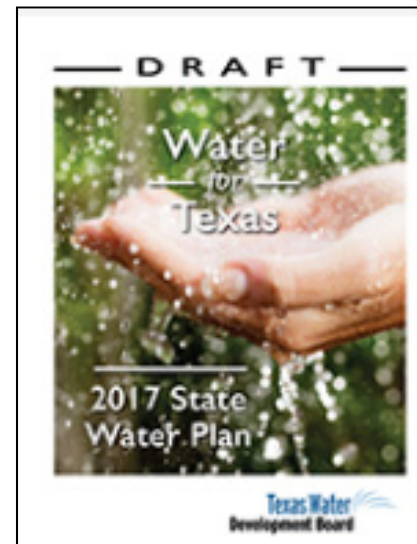
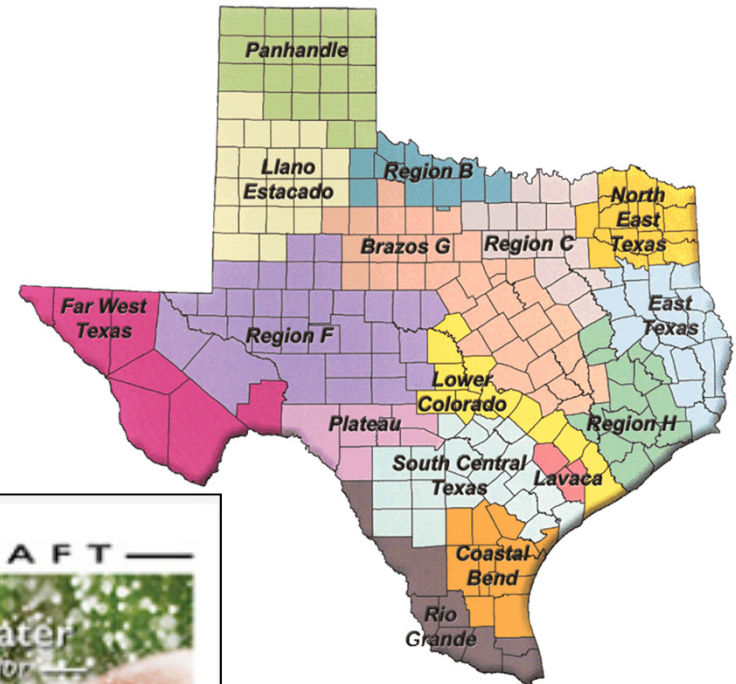
Groundwater

- Landowner ownership
- Rule of capture
- Local district management
- No statewide registration



Water Supply Planning

- 16 regions
- Established in 1997
- Regional plans make up the state water plan
- Projections based on historical use



Amount of Texas Water Use (2013)

Category	Volume (Acre-Feet)
Municipal	4,282,986
Manufacturing	917,387
Mining	151,259
Steam Electric Power	444,260
Irrigation	8,435,201
Livestock	263,316

History of Surveying for Water Use

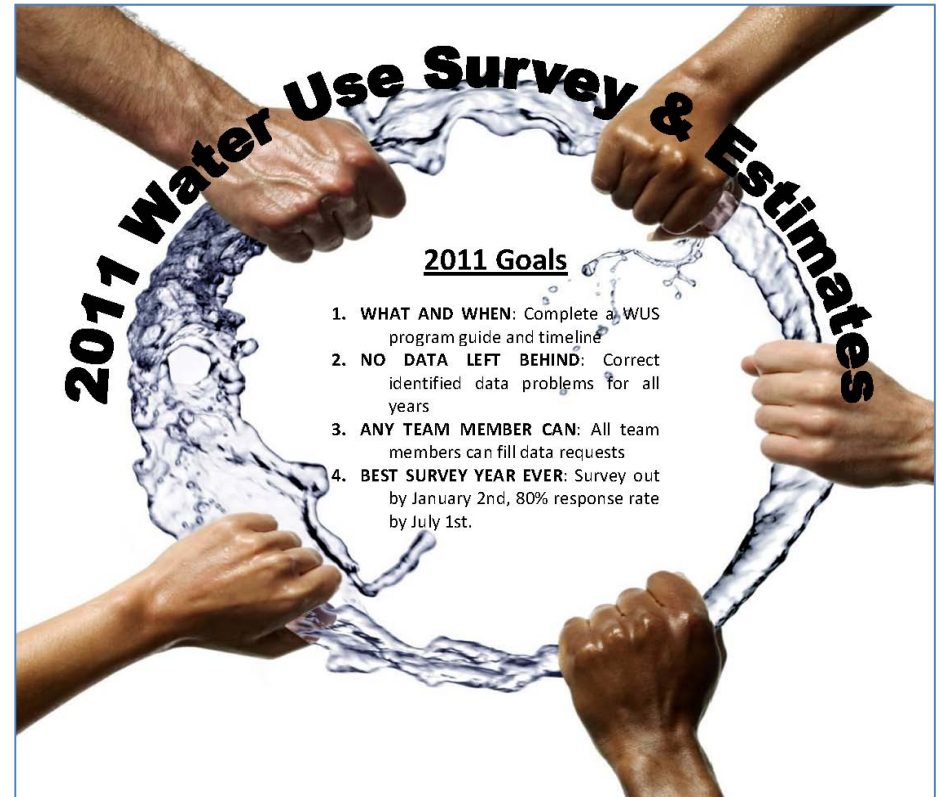
- 1955 – Survey annual GW pumping
- 1960 – Survey monthly GW pumping
- 1971 – Survey other intake types
- 1977 – Data entered electronically
- 1999 – Survey became mandatory
- 2003 – First online survey (5 years)
- 2008 – Database redevelopment & current online survey

Databases and Coding

Year	Database	Analysis/Reporting Tools
1971 – 2001	Informix	FORTRAN
2002 – 2008	MS Access	Series of Access Queries and MS Excel worksheets
2009 – Present	MS SQL Server	MS SQL Server Management Studio and Visual Studio; online database reports

Rebuilding The Water Use Survey Program (2008-2012): Lessons Learned

1. Support needed above and below
2. Fear is the first obstacle
3. You DO need an IT project manager
4. You can't have it all



Rebuilding The Water Use Survey Program (2008-2012): Lessons Learned

5. Nothing tightens a program like a database and online application
6. Meet weekly, discuss every task
7. You can't cram a deployment
8. Keep technical abilities in your shop

Annual Survey Timeline

- December (of surveyed year) – mail survey notification
- January 1st – open online survey
- March 1st – survey due
- April/May – second notification
- Summer – follow-up, QC checks
- Fall – prep for new survey year

Statutory Authority

- Texas Water Code 16.012(m)
 - “...for municipal, industrial, power generation, or mining...”
 - Failure to return survey results in:
 - Ineligibility for TWDB Funding
 - Ineligibility for new, amended, or renewed surface water permits
 - Class C misdemeanor
- All information is available to the public

Survey Responses

- Entities Surveyed (Survey Year 2014)
 - 3,949 Municipal Long survey
 - 503 Municipal Short survey
 - 1,835 Industrial survey
- Response Rates (Survey Year 2014)
 - Overall: 84%
 - Municipal: 80%
 - Industrial: 96%

Survey Responses

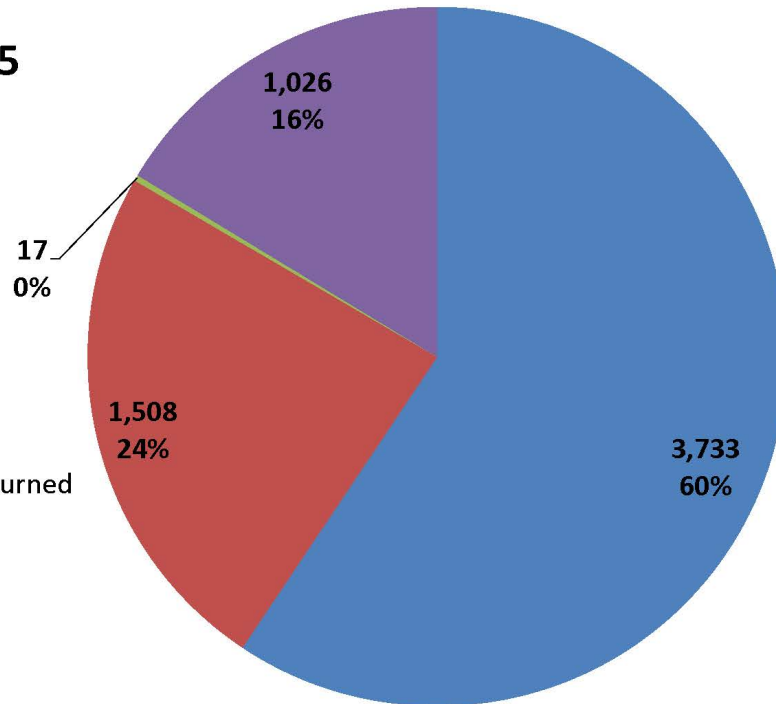
2014 Water Use Survey Submittal

84% Response Rate
as of November 4, 2015

Total Surveyed 6,284

Surveys due March 2, 2015

- Submitted Online (Externally)
- Submitted (Entered by Staff)
- Administratively Incomplete/Returned
- Not Submitted



The Survey

- Contact Information
- Intake
- Sales
- Connection Locations
- System / Facility Information



Addresses & Contacts/Survey Contacts

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“Survey Contacts” tab shows current contacts who have access to this survey

CITY OF AUSTIN-GENERAL DISTRIBUTION SYSTEM (AUSTIN) 2012

Below are the current contact(s) for this survey. Only a Contact can access the online survey. Additional contacts can be added to allow additional people to work on the survey by clicking **Add Contacts To Survey**. From there you will be asked to first search our database for the individual in case they are already listed as a contact. If they are not, you can add them.

If the contact(s) are correct, please click **Next**.

[CONTACTSMAIN]

Current Contacts For This Survey

	Last Name	Middle Name	First Name	Email	Title	Phone	Phone Ext
Remove Access	Musgrove		Judy				
Remove Access	Rothrock		Melissa				

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Home | Survey List | Instructions | **Addresses & Contacts** | Survey Data | Submit Survey

My Contact Info | Survey Contact | **Survey Address**

Previous | Next | Save | View Draft

CITY OF AUSTIN-GENERAL DISTRIBUTION SYSTEM (AUSTIN) 2012

Below is the current information that we have for this system/facility. Please correct the information as necessary. If you need to change the systems name, the requested name will be sent to TWDB staff to ensure consistent naming with other agencies.

Notes:
OPERATOR refers to a firm (NOT AN INDIVIDUAL) who operates the system for the owning organization. Self-operating systems do not need to include any information in the Operator field below.
MULTIPLE SURVEY ORGANIZATION refers to the larger organization or firm that owns more than one surveyed system or facility.
GENERAL ORGANIZATION INFORMATION is for the organization/company as a whole, specific contact information is displayed on the Contacts page.

[ADDRESSINSTRUCT]

System Name: [Click here to request system name change](#)

Primary Used County:

Primary Used Basin:

TCEQ Public Water System (PWS) Code:

PWS Code	PWS Name	Add PWS Code
Remove	2270001 CITY OF AUSTIN WATER & WASTEWATER	

Survey Address tab includes
System information and
mailing address

If name change is needed,
click this link to request
update

Survey Data/Intakes

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Water Use Survey

Survey Data tab includes all the water use survey information

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Intakes Sales Connection Location Water System Information

Previous Next Add Self Supplied Add Purchased Save View Draft

Water Source

CITY OF AUSTIN-GENERAL DISTRIBUTION SYSTEM (AUSTIN) 2012

Below are the water sources historically reported. To report the volumes pumped, diverted or purchased, sources need to be included, please click **Add Self Supplied** or **Add Purchased** below.

Note To Groundwater Users: In an effort to aid groundwater modeling, wells of public water systems can be listed individually, as water sources. Pumping volumes for specific wells and locations provided better information for the groundwater models. Providing water volumes by well is optional and groundwater users can still report combined pumping volumes if the wells are within the same county and aquifer as in previous years.

		Display Order	Water Type	Self Supplied / Purchased	County Name	Basin Name	Aquifer Name	Well Name	Water Right	Surface Water
Delete	▼	1	Surface Water	Self-Supplied	TRAVIS	COLORADO			05471-1-6-A	TOWN LAKE/RESERVOIR
Delete	▲ ▼	2	Reuse	Self-Supplied	TRAVIS	COLORADO				UNKNOWN
			Surface							LOWER COLORADO RIVER

If intake sources are carried over from previous survey, click "Edit" link to enter monthly gallons.

If need to add a new intake water source, Click either "Add Self Supplied" or "Add Purchased" button to begin.

Groundwater

- By aquifer, county & basin
- By individual well

Surface Water

- By surface water source, county & basin
- By TCEQ water right number

Purchased Water

- By seller, known source (GW, SW or Reuse)
- By seller, unknown source

Reuse Water

- Self-supplied, direct reuse
- Self-supplied, indirect reuse

City of Austin Example

Water Type	Self Supplied / Purchased	County Name	Basin Name	Aquifer Name	Well Name	Water Right	Surface Water Name	Reuse Type	Seller Survey No	Seller Name	Total Volume Gallons
Surface Water	Self-Supplied	TRAVIS	COLORADO			05471-1-6-A	TOWN LAKE/RESERVOIR			N/A	31,837,585,749
Reuse	Self-Supplied	TRAVIS	COLORADO				UNKNOWN	Direct		N/A	148,930,000
Surface Water	Purchased	TRAVIS	COLORADO				COLORADO-LAVACA RUN OF RIVER		480	LOWER COLORADO RIVER AUTHORITY-LCRA LAKE TRAVIS 14230	13,268,547,796
Surface Water	Purchased						UNKNOWN		512080	AWR SERVICES INC-LOOP 360 WSC	880,000

Survey Data/Sales

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Intakes **Sales** Connection Location Water System Information

Previous Next **Add Sale** Save View Draft

If System sold water to another water system or to a facility, click “Add Sale” button.

Water Sales

CITY OF AUSTIN-GENERAL DISTRIBUTION SYSTEM (AUSTIN) 2012

Below are listed the historically-reported water sales to public water systems and industrial production systems.

If such sales took place in the previous year, please confirm that the source information and Buyer Name is correct and then select **Edit** to enter the volumes sold. Clicking **Next** will move through all of the listed sales. For new water sales or sales that were not listed the previous year, please select **Add Sale**.

Municipal Sales
Please list water sales to other public water systems. Please do not include sales to hospitals, schools, city water utility and the facilities are outside of the city limits.


Industrial Sales
If the water system/facility sells water to industrial production facilities (mining, manufacturing, or other) that are greater than 10 million gallons. These should be sales to production facilities, not administrative or MANUFACTURING facilities and each sale is less than 10 million gallons, the system may sum these sales.

Manufacturing.

If System did not sell any water, then skip the Sales tab. To continue, click the “Connection Location” tab.

Entering Water System Information continued

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Enter the total population served directly by this system. Do not include wholesale populations.

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Intakes
Sales
Connection Location
Water System Information

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View Draft

Water System Information

CITY OF AUSTIN-GENERAL DISTRIBUTION SYSTEM (AUSTIN) 2012

What is the estimated full-time residential population served directly by this system? ← 1

Retail Water Metered
 Please provide the connection and volume information for the following recommended retail customer categories. If you are unable to report for a category, please leave the field blank.

	Connections	Volume In Gallons	Volume In Gallons
Total Metered Retail	<input style="width: 100px;" type="text" value="214,554"/>	<input style="width: 150px;" type="text" value="40,703,408,390.000"/>	40,703,408,390
Residential - Single Family	<input style="width: 100px;" type="text" value="192,104"/>	<input style="width: 150px;" type="text" value="17,796,456,500.000"/>	17,796,456,500
Residential - Multi Family	<input style="width: 100px;" type="text" value="5,655"/>	<input style="width: 150px;" type="text" value="8,685,755,500.000"/>	8,685,755,500
Institutional	<input style="width: 100px;" type="text" value="19"/>	<input style="width: 150px;" type="text" value="480,880,500.000"/>	480,880,500
Commercial	<input style="width: 100px;" type="text" value="16,767"/>	<input style="width: 150px;" type="text" value="11,030,546,190.000"/>	11,030,546,190
Industrial	<input style="width: 100px;" type="text" value="9"/>	<input style="width: 150px;" type="text" value="2,709,769,700.000"/>	2,709,769,700

2
 3

Enter Total Metered connections and the Total Volume billed to those connections in gallons.

Submit Survey Warning

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Home Survey List Instructions Addresses & Contacts Survey Data **Submit Survey**

Previous **Next**

1

Almost done! Click "Submit Survey" tab once previous tabs are complete.

3

Data Submission Error/Warning List

CITY OF AUSTIN-GENERAL DISTRIBUTION SYSTEM (AUSTIN) 2012

If survey **ERRORS** appear in red below, please review the survey questions identified as being incomplete and enter the necessary information. The survey cannot be submitted and considered complete without providing this information.

If "WARNINGS" appear below, please review the survey questions identified as **potential** errors. This application compares current survey data to last year's data to identify any potential errors. **If you find that the data is correct, the survey CAN be submitted by selecting "Next" and then "Submit".**

If you need additional assistance, please contact TWDB staff at 512-463-7952 or waterusesurvey@twdb.texas.gov

2

If receive "Warnings", verify that data the warnings refer to are in fact correct. If so, click "Next" button.


Warnings:

Intake Monthly Vol: C-TRAVIS, B-COLORADO, SW-COLORADO-LAVACA RUN OF RIVER: February: data (0) is less than -66 percent from last year (82179622)

Intake Monthly Vol: C-TRAVIS, B-COLORADO, SW-COLORADO-LAVACA RUN OF RIVER: March: data (0) is less than -66 percent from last year (688392823)

Receive Final Draft Copy of Survey

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Final

CITY OF AUSTIN-GENERAL DISTRIBUTION SYSTEM (AUSTIN) 2012

The next step is to Submit the survey.

If you wish to review all of the information that you have submitted, please click on the **Survey Data** tab, and then on the gray **View Draft** button. This will produce a pdf report to be viewed, saved and/or printed. If any of the information is incorrect, you can edit the information.

If the information is correct, press **Submit** on this page to complete this submission. Once submitted, survey data can only be changed by TWDB staff.

If you find that there had been an error in a submitted survey, please contact staff at waterusesurvey@twdb.texas.gov

You have successfully submitted this survey. [Click here to view final survey.](#)
[Click here to return to the survey list.](#)

Click this link to receive a final draft copy of the submitted online survey.




Quality Control Procedures

- Online survey pre-submittal checks
 - Warnings and Errors
- Post survey QC checks:
 - Intakes < or > 50% of previous year
 - Sales < or > 50% of previous year
 - Matching buyer-reported & seller-reported sales
 - Total connections & pop-served < or > 50%
 - Review of summary use volumes and GPCD to previous year



Data & Reports

Water Use Summary Estimates



State / Planning Region ([Region Water Planning map](#))

-  [State Water Use Snapshot \(2000-2013\)](#)
-  [Summary, 1999 and Earlier \(State Only\)](#)
-  [Summary, 2000 and Later](#)

County

-  [Summary, 1999 and Earlier](#)
-  [Summary, 2000 and Later](#)

Major River Basin ([Major River Basin map](#))

-  [Summary, 1999 and Earlier](#)
-  [Summary, 2000 and Later](#)

Regional Water Planning Water User Group (Cities and Utilities)

-  [Summary, 1999 and Earlier](#)
-  [Summary 2000-2007](#)
-  [Summary, 2008 and Later](#)
-  [GPCD Detail Report](#)

Other Water Use Related Reports

-  [Historical Water Use by Industry Type](#)
-  [Water Reuse Report, by Year](#)
-  [Water Reuse Report, by Water Planning Region](#)
-  [Historical Surveyed Municipal Water Intake, by Water Planning Region](#)
-  [Historical Surveyed Industrial Water Intake, by Water Planning Region](#)
-  [Water Use Survey Submittal Status, Prior Three years](#)

Data & Report Examples

WATER USE SURVEY HISTORICAL SUMMARY ESTIMATES BY COUNTY

(All volumes are in acre-feet unless otherwise noted. 1 Acre-Foot = 325,851 gallons)

As of 4/11/2016 4:04:19 PM

Revised as Additional or More Accurate Data Becomes Available Through Survey Responses

Report Filename: SumFinal_CountyReport

Year	County	Population	Municipal	Manu- facturing	Mining	Steam Electric (Power)	Irrigation	Livestock	Municipal Ground Water	Municipal Surface Water	Mfg Ground Water	Mfg Surface Water	Mining Ground Water	Mining Surface Water	Power Ground Water	Power Surface Water	Irrigation Ground Water	Irrigation Surface Water	Livestock Ground Water	Livestock Surface Water
2013	ANDERSON	59,008	15,643	0	1	0	799	999	9,757	5,886	0	0	1	0	0	0	452	347	49	950
2013	ANDREWS	16,491	3,602	428	1,235	0	18,398	206	3,602	0	428	0	1,235	0	0	0	18,398	0	206	0
2013	ANGELINA	89,839	11,273	3,195	11	0	642	477	10,649	624	2,897	297	8	3	0	0	0	642	47	430
2013	ARANSAS	24,385	3,694	0	0	0	0	48	411	3,283	0	0	0	0	0	0	0	0	34	14
2013	ARCHER	9,242	1,128	1	35	0	400	1,692	144	984	0	1	6	29	0	0	400	0	337	1,355
2013	ARMSTRONG	1,944	383	0	0	0	7,755	273	383	0	0	0	0	0	0	0	7,755	0	246	27
2013	ATASCOSA	47,125	6,876	50	2,336	7,934	31,848	1,320	6,876	0	50	0	2,106	230	7,934	0	31,848	0	1,056	264

WATER USE SURVEY SUMMARY ESTIMATES BY WATER USER GROUP


(All volumes are in acre-feet unless otherwise noted. 1 Acre-Foot = 325,851 gallons)

As of 4/11/2016 3:48:47 PM

Revised as Additional or More Accurate Data Becomes Available Through Survey Responses

Report Filename: SumFinal_WUGSum

Year	Entity Name	Population	Intake Total	Sales Total	Sales Municipal	Sales Industrial	Sales Power	Net Use	Gallons Per Capital Daily (GPCD)	Residential Volume	Residential GPCD
2013	439 WSC	6,279	807	2	2	0	0	805	114	675	96
2013	ABERNATHY	2,816	516	0	0	0	0	516	164	306	97
2013	ABILENE	120,769	24,929	4,824	4,299	525	0	20,105	149	11,492	85
2013	ACTON MUD	12,861	1,848	54	54	0	0	1,794	125	1,418	98
2013	ADDISON	15,557	5,161	3	0	3	0	5,158	296	1,885	108

		WATER USE SURVEY HISTORICAL USE BY INDUSTRY TYPE for 2013			
		(All volumes are in gallons unless otherwise noted. 1 Acre-Foot = 325,851 gallons) As of 4/11/2016 3:57:34 PM Revised as Additional or More Accurate Data Becomes Available Through Survey Responses Report Filename: HistoricalByNAICS			
3-Digit NAICS Code	Industry	Water Intake Total	Water Sales Total	Net Use Total	Surveyed Facility Count
221	Utilities (Not Power Generation)	861,704,512	380,875,075	480,829,437	13
237	Heavy and Civil Engineering Construction	841,000	0	841,000	1
311	Food Mfg	15,950,267,814	0	15,950,267,814	189
312	Beverage and Tobacco Product Mfg	4,537,867,160	0	4,537,867,160	43
313	Textile Mills	290,374,407	0	290,374,407	12
314	Textile Product Mills	34,655,364	0	34,655,364	3
315	Apparel Mfg	4,837,800	0	4,837,800	2
316	Leather and Allied Product Mfg	214,231,732	0	214,231,732	10
321	Wood Product Mfg	3,807,879,896	0	3,807,879,896	32
322	Paper Mfg	23,100,381,055	317,256,000	22,783,125,055	40
323	Printing and Related Support Activities	103,433,589	0	103,433,589	14
324	Petroleum and Coal Products Mfg	111,923,486,587	18,208,723,506	93,714,763,081	49

New Opportunities

- Utility customer characterization information
- Increase interaction with Public Water System and State Water Plan data



New Opportunities

- Loss, Use, & Conservation (LUC) project
 - Reduce duplication & make the data more consistent
 - Currently: 2 online apps & 1 smart pdf
 - Goal: consolidated report regarding how utilities use, lose, and conserve water

Water Use
Survey

Water Loss
Audit

Conservation
Annual
Report

Challenges

- Responses for Investor-Owned Utilities
- New industrial facilities
- Data Quality
- Integration with SW permitting & local GW data

Challenges

- Quicker reporting of data
- Evolving data interests
 - Wastewater Reuse
 - Brackish groundwater use
 - Population estimates & service areas
- HUC 8

Contact Information

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Historical Water Use Estimates

<http://www.twddb.texas.gov/waterplanning/waterusesurvey/estimates/index.asp>

2017 Texas State Water Plan

<http://www.twddb.texas.gov/waterplanning/wp/2017/index.asp>

Questions?

A graphic for the 'Water for Texas 2017 conference'. It features a close-up photograph of hands being washed under a stream of water, with water droplets visible. The background is a light blue sky with white clouds. The text 'WATER for TEXAS' is prominently displayed, with 'WATER' in a bold, sans-serif font, 'for' in a script font, and 'TEXAS' in a bold, sans-serif font. A small icon of a water tap is above the 'W' in 'WATER'. Below this, '2017 conference' is written in a smaller, sans-serif font. At the bottom left, the dates 'January 24-26, 2017' are listed, followed by the location 'AT&T Conference Center, Austin, Texas' and the host 'Hosted by the TWDB'. At the bottom right, the website 'WaterForTexas.twdb.texas.gov' is provided.

WATER for **TEXAS**
2017 conference

January 24-26, 2017
AT&T Conference Center,
Austin, Texas
Hosted by the TWDB

WaterForTexas.twdb.texas.gov